



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/601,464

06/23/2003

Ronald Brooks Miller

2224

7590

05/02/2006

Ronald B. Miller
1721 Sunset Avenue
Newark, CA 94560

EXAMINER

PATEL, ISHWARBHAI B

ART UNIT

PAPER NUMBER

2841

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,464

Applicant(s)

MILLER, RONALD BROOKS

Examiner

Ishwar (I. B.) Patel

Art Unit

2841

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 5,6,8-12,15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,7,13 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to amendment filed on February 21, 2006.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. As the claims are directed to a structure, the title should be suitably changed to indicate the structure and not the method.

Claim Objections

3. Claims 1-4, 7, 13, 14 and 17 are objected to because of the following informalities:

The claim(s) must be in one sentence form only. There should not be any period (.) in the sentence. Note the format of the claims in the patent (s) cited. Claims 1 and 17, both are not in one sentence form.

Claims 4, 7, 13, 14 and 17 depend upon claim one and inherit the same deficiency.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2841

5. Claim 17 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 17, the language "wherein laminating metal to metal **may use** an adhesive coating or an adhesive layer" makes the claim indefinite. It does not make clear the presence of the adhesive coating or adhesive sheet in the structure. For the examination purpose the presence of the adhesive layer not considered.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-4, 7, 14 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shiau (US Patent No. 5,319,329).

Regarding claim 1, Shiau, in figure 2, discloses a printed circuit board with internal signal traces (64, 70, 74) on a thin dielectric layer (42) suspended in air between two flat metal plates (44,46), suspension in air is accomplished by indentation of the flat metal plates above and below the trace (indentation in plate 44 and 46, see figure, column 2, line 59-65), the width of this indentation being wider than the trace, leaving the remainder of the metal away from the indentation to act as spacer, the indented area is referred to as a channel (see figure).

Regarding claim 2-4, the applicant is claiming the method steps by which the product is made. However, how the product is made is a process step in the product. Such a process limitation defines the claimed invention over the prior art to the degree that it defines the product itself. A process limitation cannot serve to patentably distinguish the product over the prior art, in the case that the product is same as, or obvious over the prior art. See Product-by-Process in MPEP § 2113 and 2173.05(p) and *In re Thorpe*, 777 F.2d 695, 227 USPQ 964, 966 (Fed. Cir. 1985). Shiau discloses the structure as claimed. Therefore, Shiau meets the limitations.

Regarding claim 7, Shiau discloses all the features of the claimed invention including the dielectric layer as applied to claim 1 above. Further, structure of Shiau is a stable to function as a device. Therefore, the substrate must be strong enough to support the trace. Therefore, Shiau meets the limitation.

Regarding claim 14, Shiau further discloses the channels in the metal plates extended to the edges of the PCB (see figure).

Regarding claim 17, Shiau further discloses all the features of the claimed invention as applied to claim 1 above including connecting two metal plates (44, 46).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shiau as applied to claim 1 above, and further in view of Cruchon (US Patent No. 4,849,722).

Regarding claim 13, Shiau discloses all the features of the claimed invention, including the conductive layers and trace but does not disclose the thickness of spacer about 4 or 5 mils, trace about 1 mil thick and the overall section about 12 mil thick. However, the size of the trace will depend upon the signal transmitting capacity required and that of the spacer layers will be decided based on the control of the electromagnetic fields. Cruchon in figure 1 discloses a structure with a trace (15) on a substrate (14), which is sandwiched between two conductive body (10 and 11). Cruchon further states how the height (H, H') of the spacer is selected, column 2, line 62 to column 3, line 42. Also, Cruchon, by way of an example discloses dimensions of various component (column 4, line 3-24) and states that the component parts could be replaced by equivalent parts without thereby going beyond the scope of the invention. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the structure of Shiau with the dimension of the spacer and trace along with the overall section as claimed, as taught by Cruchon, in order to control the electromagnetic field to the desired range for the optimum performance of the device.

Response to Arguments

9. Applicant's arguments filed on February 21, 2006 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant argues that the prior art patent of Shiau describe a mechanical assembly of a printed circuit board and external metal plates bolted to the board, which was never used for interconnecting trace but was for filter assemblies. This is not found to be persuasive. The prior art of Shiau, as explained in the rejection, discloses all the features as claimed, including the traces on a dielectric layer and the plates with indentation. How and where the structure of Shiau was used is a functional limitation and that does not differentiate the structure. Shiau discloses the structure as claimed. Therefore, Shiau meets the limitations. Applicant further argues, about dependent claims 2-4, that the product was made using standard processes used in printed circuit manufacture and therefore cost effective. However, as explained in the rejection, how the product is made is process limitation in the product claim and does not distinguish the product over the prior art, in the case that the product is same as, or

Art Unit: 2841

obvious over the prior art. Shiau discloses the structure as claimed. Therefore, Shiau meets the limitations.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Glance (US Patent No. 3,863,181) discloses a printed circuit board with traces (204, 205) on a dielectric layer (203) embedded in metal plates with indentation (see figure 2).

Quan (US Patent No. 5,412,354), in figure 1, discloses a Teflon circuit board (52) with traces (54) embedded in metal plates (60, 62) with indentation forming air channel (column 2, line 24-35).

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2841


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571) 272 1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ishwar (I. B.) Patel
Patent Examiner
Art Unit: 2841
April 27, 2006


KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800